

ABSTRACT

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A high electron mobility transistor using a Group III-V compound semiconductor comprises an undoped second channel layer laminated on an InP substrate via a buffer layer, an undoped first channel layer laminated on the second channel layer, and a doped electron-supplying layer laminated on the first channel layer. The first channel layer is composed of  $\text{In}_{1-x}\text{Ga}_x\text{As}$  and has an energy level of conduction band lower than that of the electron -supplying layer at the interface. The second channel layer is composed of a Group III-V compound semiconductor using a Group V element other than P, has an energy level of conduction band higher than that of the first channel layer, and has a band gap wider than that of the first channel layer.